

### **Abstract**

An electric arc welder for creating a succession of AC waveforms between an electrode and workpiece by a power source comprising an high frequency switching device for creating individual waveforms in the succession of waveforms. Each of the individual waveforms has a profile determined by the magnitude of each of a large number of short current pulses generated at a frequency of at least 18 kHz by a pulse width modulator with the magnitude of the current pulses controlled by a wave shaper. The welder is provided with a profile control network for setting more than one profile parameter selected from the class consisting of frequency, duty cycle, up ramp rate and down ramp rate and a magnitude circuit for adjusting the waveform profile to set total current, voltage and/or power.